miuAudio

MKTP-2 Class-T stereo Headamp, Preamp and power amplifier

ENGLISH

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1. Introduction

Thank you for your purchase of Miu-Audio MKTP-2 Class-T stereo Headamp, Preamp and power amplifier.

Miu-Audio introduces the mini-size Class-T stereo amplifier MKTP-2 providing up to 2x15W output with the bundled AC power supply unit. Thanks to the Tripath's proprietary Class-T Digital Power Processing (TM) technology and our special techniques in circuit design and component selection, MKTP-2 achieves the sound quality of high-end Hi Fi but in a very affordable price.

2. Features

- Applied the proprietary T-amp technology for audiophile quality sound, high power efficiency (90%) and less heat generation
- Compact design (mini-size & light weight), easy portable and setup
- Provide up to 2x15W output
- An AC adaptor is bundled for continuous power supply.
- Separated amplifier & AC adaptor design to minimize mutual interference and flexible to apply other power sources, e.g. lead-acid battery.
- Standard audio and speaker sockets compatible with most audiophile quality cables.
- It suppresses the "pop" sound when power on/off and also increase the sound purity.
- Built-in over-current protection.
- Built-in over-temperature protection
- Audiophile-graded parts and components
- Air-core inductor used instead of magnetic-core for better sound
- The stylish & specially-plated aluminum case provides not only good-looking, and also provides outstanding shielding capability.

Safety Guidelines

Important safety instructions

This product is designed and manufactured to meet strict quality and safety standards. However, you should be aware of the following installation and operation precautions.

1. Take heed of warnings and instructions
You should read all the safety and operating instructions before operating this equipment. Retain this handbook for future reference and adhere to all warnings in the handbook or on the equipment.

2. Water and moisture
The presence of electricity near water can be dangerous.
Do not uses the equipment near water, for example next to a bathtub, washbowl, kitchen sink, in a wet basement or near a swimming pool, etc.

3. Object or liquid entry
Take care that objects do not fall and liquids are not spilled into the enclosure through any openings. Liquid filled objects such as vases should not be placed on the equipment.

4. Placing the equipment
Only use a rack or shelf that is stable and strong enough to support the weight of this equipment.

5. Ventilation
Do not place the equipment on a bed, sofa, rug or similar soft surface, or in an enclosed bookcase or cabinet, since ventilation may be impeded. We recommend a minimum distance of 50mm around the sides and top of the equipment to provide adequate ventilation.

6 Heat
Locate the equipment away from naked flames or heat producing appliances such as radiators, stoves or other appliances that produce heat.

7 Climate

The equipment has been designed for use in moderate climates and in domestic situations.

8. Cleaning

Unplug the unit from the mains supply before cleaning.

The case should normally only require a wipe with a soft, lint-free cloth. Do not use chemical solvents for cleaning.

We do not advise the use of furniture cleaning sprays or polishes as they can cause indelible white marks.

9. Power sources

Only connect the equipment to a power supply of the type described in the operating instructions or as marked on the equipment.

The primary method of isolating Solo Mini from the mains supply is to use the switch on the rear of the unit. Solo Mini must be installed in a manner that makes disconnection possible.

10. Power-cord protection

Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to the point where they exit from the equipment.

11. Power lines

Locate any outdoor antenna/aerial away from power lines.

12. Non-use periods

If the equipment is not being used for an extended period, we recommend that you unplug the power cord of the equipment from the outlet, to save power.

13. Abnormal smell

If an abnormal smell or smoke is detected from the equipment, turn the power off immediately and unplug the equipment from the wall outlet. Contact your dealer and do not reconnect the equipment.

14. Servicing

You should not attempt to service the equipment.

Contact your dealer to arrange servicing.

15. Damage requiring service

The equipment should be serviced by qualified service personnel when:

A. the power-supply cord or the plug has been damaged, or
B. objects have fallen, or liquid has spilled into the equipment, or
C. the equipment has been exposed to rain, or
D. the equipment does not appear to operate normally or exhibits a marked change in performance, or
E. the equipment has been dropped or the enclosure damaged.

Safety compliance

This equipment has been designed to meet the EOCENE 60065 international electrical safety standards.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

WARNING:

Due to the mains switch being located on the rear panel, the apparatus must be located in an open area without anything obstructing access to the mains switch.

Mains plug/appliance coupler is used to disconnect device and it shall remain readily operable.

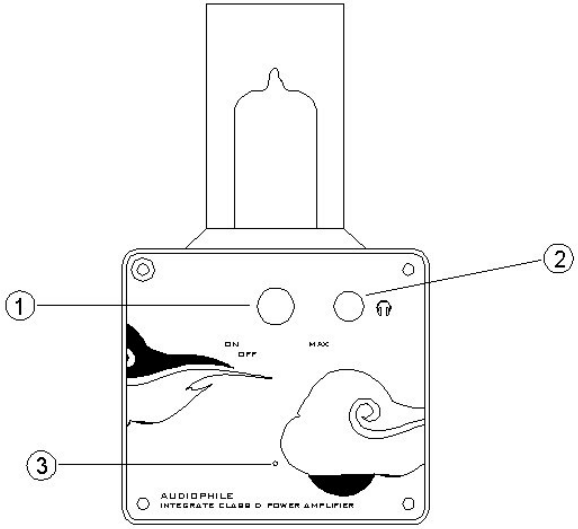
Correct disposal of this product

This marking indicates that this product should not be disposed with other household waste throughout the EU.

To prevent possible harm to the environment or human health from uncontrolled waste disposal and to conserve material resources, this product should be recycled responsibly.

To dispose of your product, please use your local return and collection systems or contact the retailer where the product was purchased.

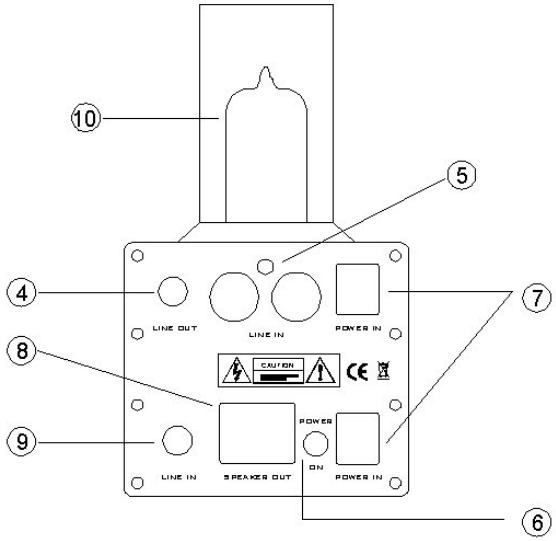
3. Overview



1. Volume Controller and Pre-Amp Power On/Off.
2. 3.5mm Headphone socket
3. Power Indicator

WARNING:

When plug in your headphone or MP3 into the mini jack (2), always plug in a vertical way. NEVER shake the mini jack as this will permanently damage the internal structure of the socket causing bad contact of signal.



4. Audio signal line output.
5. Audio input. The audio signal input (LEFT/RIGHT) connects from audio source (e.g. CD player) to the amplifier by the RCA audio cable.
6. Power ON/OFF switches; pull up to power off the amplifier and pull down to power on.
7. Power Supply Socket; Plug the bundled AC Adaptor to this socket to supply power to this amplifier.
8. Speaker Output (RJ-45);
9. Audio signal line in.
10. Vacuum Tube (6922)

WARNING:

When plug in the supplied mini jack cable between 4 and 9, always plug in a vertical way. NEVER shake the mini jack as this will permanently damage the internal structure of the socket causing bad contact of signal.

3.1 Connection

The mini series is easy to use product. Simply connect your source (CD player, MP3 player, etc..) and speakers following below steps, you can enjoy the high quality music in a second:

- Connect “Line Out” mini socket (4) to the “Line In” mini socket (9) using the supplied mini jack to mini jack audio cable.
- Connect your CD player to the “Line In” RCA socket (5) using normal RCA audio cable (not included)
- Connect your speakers to the included RJ45 – binding post adapter. Then use the provided CAT-5 cable to connect the adapter to the RJ45 jack of the amplifier (8)
- Connect the power adaptor to the “Power In” connector (7) of both units.

It’s now all set and you are ready to enjoy your music.

3.2 Operation

Please follow the below steps such that you can enjoy the product without any difficulty:

- Turn the “Volume controller” (1) clockwise to turn on the pre-amplifier and **keep the level at minimum.** Now the vacuum tube (10) will slowly turn on and you will see blue light from the top window. Wait for around 15 seconds to let the vacuum tube warm up to its operation temperature.
- Turn on the power amplifier using the “Power” switch (6) at the back of the unit. Now you can see the “Power Indicator” (3) turns to blue color.
- Play your source equipment and you can hear music from your speakers. Now, you can control the volume level by turning the “Volume controller” (1)
- There is a “3.5mm Headphone socket” (2) in the front panel. You can connect your headphone to the unit. Once your headphone is connected, the speaker output will be disconnected automatically.
- **To turn off the amplifier**, turn the “Volume controller” (1) to minimum level. Then, switch off the “Power” switch (6) of the power amplifier. When the “Power Indicator” (3) turn off, turn the “Volume controller” (1) to fully turn off the pre-amplifier.

4. Specifications

4.1 Specification of the Power Amplifier Unit

T-Amp IC Tripath TA2024

Output Power	2x15W @4ohm
	2x6W @8ohm(RMS)
Signal-to-Noise Ratio (SNR)	98dB
Dynamic Range	98dB
IHF IM Distortion	0.10% @ 1W, 4ohm
THD+Noise Audiophile Quality	0.03% @ 9W 4ohm
	0.1% @ 11W 4ohm
	0.1% @ 6W 8ohm
High Power	10% @ 15W 4ohm
	10% @ 10W 4ohm
Power Efficiency	81% @ 15W 4ohm
	90% @ 10W 8ohm
Input Audio	IN RCA (Left/Right) x 1
Power Socket	(5.5mm/2.1mm) x 1
Speaker OUT	RJ45 x1
Other	Volume & Knob Power ON/OFF switch x
Power Indicator	(Blue LED) x1
Power Supply	DC 12V-13.2V (max.)

4.2 Specification of the Headphone Amplifier Unit

Signal-to-Noise Ratio	(SNR) 92dB
Power Output	3.0 Watts per channel on 33 Ohm Headphone
Frequency response	15 Hz - 100 kHz -1db
Input Impedance	10k Ohms
Input Audio	CD IN RCA (Left/Right) x 1 [3Vpp max.]

4.3 Specification of the Pre Amplifier Unit

Vacuum Tube	6DJ8/6922 series or 12AU7 series (exchangeable)
Signal-to-Noise Ratio (SNR)	92dB
THD + Noise	0.05% @ 10k ohm 0.15% @ 33 ohm
Input Audio	CD IN RCA (Left/Right) x 1 [3Vpp max.]
Power Socket	(5.5mm/2.1mm) x 1
Output Audio	OUT 3.5mm x 1
Headphone	OUT (3.5mm) x 1
Knob Audio and power switch x 1	
Power Indicator	(Blue LED under Tube Socket) x1
	Volume Knob x 1

Power Supply DC 12V-13V (max.)
Dimensions (W)76mm x (H)60mm x (D)100mm

4.4 Specification of the AC Adaptor

AC Input Universal AC 100V-240V/50-60Hz
DC Output DC 12V 4A (48W)
DC Plug DC 2.1mm
Ripple & Noise <= 25mV
Over-load Protection 105%-150%
Over-voltage Protection 115%-150%
Dimensions (L)78mm x (W)50mm x (H)33mm

5. Technical Notes (for professional user only)

Miu-Audio has already pre-set the jumpers and fine-tuned the DC bias voltage of each MKTP-2 with the packaged vacuum tube before shipping. However, changing different tubes to taste for different sound is the great fun for many audiophiles and also a great feature of MKTP-2.

There are some important notes should be aware before changing tubes.
MKTP-2 supports two major tube series:
(1) 6DJ8, 6922, 6N11, 6H23n, ECC88, E88CC, etc., and
(2) 12AU7, 5963, 5814, ECC82, etc.

If you change the tube within the same series, it needs to re-tune the DC bias voltages ONLY.

If you change the tube from another series, it needs both to re-tune the DC bias voltages and re-set the jumpers. Otherwise, the tube may be burnt out.

The power amplifier jumper setting for Different Tube Series
You can simply configure the amplifier to support the two different tube series by resetting the jumpers in J3, J4, and J5 in the PCB as shown in section 5.1.
(Remember to power OFF the machine before setting)

5.1 DC Bias Voltage Tuning

Since each tube might derivate a bit in parameters, especially from different series, it needs to re-tune the DC bias voltages to guarantee the machine is working in the best point and performing the best sound quality.

There are two blue precise adjustable potentiometers (P1, P2) for tuning the DC bias voltage of each channel. The DC bias has been tuned in factory. But after run-in for a period or changed another tube, it would be deviated that the fine-tuning is needed.

Before you tune these, you need a screwdriver (take off the case), a small screwdriver. (Turn the screw of the potentiometer) and a (digital) multi-meter to detect the DC bias voltage:

1. Use screwdriver to take out the two upper level screws in the front panel & another two screws in the back panel. Then, open the upper case.
2. Power ON the machine with no audio signal input.
3. Wait at least 5 minutes for the machine to run in.
4. Use the multi-meter to detect the DC voltage between the test point A (L) [red] in the PCB & the GND [black] (e.g. the ring of the power switch or the outer ring of those RCA sockets) of the LEFT channel.
5. Turn the screw on the top of the P1 potentiometer by a small screwdriver clockwise or anticlockwise until the voltage as close as to +6~+8V.
6. Then, repeat step 4 and 5 for the RIGHT channel by changing the test point to A (R) [red] and turning the screw on the top of the P2 potentiometer.
7. Power OFF the amplifier.
8. Cover back the upper case and tighten the screws.

6. Troubleshooting

If your machine is out of order, it may not be very serious. Before you call your local distributor or us to repair, you are suggested to check the following:

SYMPTOM	POSSIBLE CAUSE	REMEDY
cannot power ON indicator not bright	power cords not properly connected	properly connect the power cords
	power switch is OFF	switch ON the power
no sound at all	the volume level is too low	turn volume level higher
	The audio cable not properly connected	properly connect the audio cable
	the audio source (e.g. CD player) not started playing	start playing the audio source
	wrong input is selected	check input selection
	the speaker cables not properly connected	properly connect the speaker cables
Hum	tube not fully pushed in	Insert Tube securely
	audio connector plug not fully pushed in	Insert plug securely
	incorrect input switch position	check the corresponding input switch
sound out(s)	loose connection	check input and output connections. When all has been double-checked reduce volume and switch unit back on

7. Accessories

- . 3.5MM jumper cable x 1
- . RJ45 to speaker binding post adaptor x 1
- . 2.1MM Power bifurcation line x 1
- . Tube x1
- . +12V power supply x 1

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